

REMARKS

Applicant's attorney gratefully acknowledges the interview granted by Examiner Culbreth on November 18, 2009. At that interview, it was agreed that claims 1 and 7 would be allowable over the Kajiyama '441 patent if amended in the manner set forth in the Proposed Amendment. This amendment revises claims 1 and 7 in exactly the manner agreed upon and set forth in the Proposed Amendment. Moreover, claim 13 has been amended to recite, in method terminology, the same limitations that render claim 1 allowable. Finally, more detailed arguments for patentability are set forth in the Remarks section for claims 21 and 28.

The objections to the drawings have been obviated by the submission of substitute sheets for Figures 1 and 2 which correct all the errors pointed out by the Examiner in the last Office Action.

The objections to the specification have been obviated by providing a one-paragraph substitute Abstract on a separate sheet at the end of this document, and by revising paragraphs [0002] and [0004] to delete all reference to "Document 1", revising paragraphs [0006]-[0021] to delete all reference to claim numbers, and by amending paragraphs [0026]-[0028] and [0059] and [0060] to replace the word "structures" with more accurate and appropriate terminology. No new matter has been added to the specification.

Applicants respectfully traverse the Examiner's objection to the specification on the basis that it fails "to provide proper antecedent basis for the claimed subject matter." Applicants' attorney would point out that all of the terms used in the claims (such as "rotating member" and "maintaining component") have been expressly cross-referenced to specific numbered components of the preferred embodiments in paragraph [0072], reproduced hereinbelow:

[0079] 10 webbing retractor
18 spool (take-up shaft)
20 webbing
24 torsion shaft (maintaining component)
26 lock gear (rotating member)
34 pretensioner mechanism

- 70 compression coil spring (urging component)
- 74 lock plate (engaging member, maintaining component)
- 78 lock pawl (engaging member, maintaining component)
- 86 lock stopper (moving member, moving/urging member)
- 100 webbing retractor
- 102 coil spring (moving/urging member)

The rejection of claims 9-10, 16, 21, 23 and 25 under 35 USC §112, second paragraph, has been obviated by revising these claims to define the invention in clearer and more concise terms. In particular, the term “moving/urging member” has been replaced throughout the claims with the clearer term “stopping member” (corresponding to lock stopper 86). Also, the apparent double inclusion of the term “lock member” and “engaging member” has been corrected by reciting that these components are separate from one another, as is the lock plate 74 and the lock pawl 78 disclosed in the disclosure. With respect to claim 25, the Examiner should note that the recited “restricting member” corresponds to the leg 84 of the guide plate 80 (see paragraph [0044] of the disclosure). Accordingly, reconsideration and withdrawal of the §112, second paragraph is appropriate.

Finally, the rejection of the claims under 35 USC §102(b) over the Kajiyama ‘441 patent has been obviated by revising claim 1 to more clearly recite the functional aspects of the invention. Specifically, amended claim 1 recites a webbing retractor comprising: a rotating member by which, due to the rotating member being rotated in a take-up direction, a webbing is taken-up, and by which, due to the rotating member being rotated in a pull-out direction, the webbing is pulled-out; a pretensioner mechanism which, by being operated, rotates the rotating member in the take-up direction; and

an engaging member which, **due to operation of the pretensioner mechanism**, is changed from a non-engageable state in which the engaging member **cannot engage** with the rotating member to an engageable state in which the engaging member does **not** engage with the rotating member and which **engages** with the rotating member **only after** operation of the pretensioner mechanism **and after rotational force in the pull-out direction is applied**, whereupon the engaging member **immediately** impedes rotation of the rotating member by engaging with the rotating member.

Thus amended claim 1 recites **two** conditions for the engaging member (corresponding to the lock pawl 78) to engage and impede the rotational member, i.e. (1) the pretensioner must operate, and (2) a rotational force in the pull-out direction must be applied to the rotational member. After the first condition is fulfilled, the engaging member does **not** engage with the rotating member. Such engagement occurs only after the **second** condition is fulfilled, whereupon the engaging member “**immediately**” impedes rotation of the rotating member. Such operation results in the advantages of the invention graphically depicted in Figure 6, which include the (1) reduction of the amount of webbing pulled out during an emergency condition, (2) the application of a constant and lower force from the seatbelt to the vehicle occupant, and (3) the prevention of the moving of the piston of the pretensioner back to the interior of the cylinder.

None of the references of record remotely discloses or suggests the webbing retractor recited in amended claim 1. All that the Kajiyama ‘441 patent discloses is a lock member 38 that engages a lock wheel 35 connected to a second torsion bar 32 **during** the operation of a pretensioner 11, as set forth in the paragraph bridging 6 and 7, which clearly describes how the lock member operates **simultaneously** with the operation of the pretensioner:

On the other hand, **at least a portion of the exhaust gas generated by the pretensioner 11** can be made to pass through the guide tube 41 **and is guided toward the piston 42** also, acting in the direction such that the piston 42 pops out from the guide tube 41 due to the exhaust gas. **Due to the operation of this piston, the lock pin 40 is ejected** as shown in FIG. 2(b), so the locking of the lock member 38 is disengaged, **the lock member 38 ejects from the cylinder member 37 by the spring force of the spring 39, and reaches the engaging position.** Then, as with the above-described case of a collision, the fourth gear 34 rotates due to the spool 4 rotating in the belt extracting direction CW via the second gear 31, so the lock wheel 35 rotates in the same direction as well. However, a ratchet claw 35a engages the lock member 38 immediately, so rotation of the lock wheel 35 in the belt extracting direction CW is obstructed. At this time, rotation of the lock wheel 35 in the belt take-up direction CW is permitted, due to the one-way clutch operation by the ratchet claws 35a. (Emphasis added.)

Thus the Kajiyama ‘441 patent neither discloses nor suggests the recited engaging member that engaging a rotating member **only after** “operation of the pretensioner mechanism **and**

rotational force in the pull-out direction is applied,...” This is **not** a trivial distinction, as such operation causes this device to interfere with the operation of the pretensioner, and hence prevents this device from realizing all of the advantages of the invention. For this reason alone, amended claim 1 is patentable over the Kajiyama ‘441 patent.

Claim 7 recites a webbing retractor comprising: a webbing applied to a vehicle occupant; a pretensioner mechanism, the webbing being taken-up due to the pretensioner mechanism being operated; and a maintaining component for maintaining a load at a constant level, which is applied from the webbing to the vehicle occupant after the conclusion of operation of the pretensioner mechanism,

including a **single** torsion bar and an engaging member that moves due to operation of the pretensioner mechanism.

As the seat belt retractor disclosed in the Kajiyama ‘441 patent clearly has, and must have, **two** torsion bars in order to operate, amended claim 7 is patentable over this reference for this reason alone.

Claim 8 is patentable not only for its dependency on amended claim 7 but for its recitation of the same components discussed with respect to the patentability of amended claim 1. Hence claim 8 is clearly patentable.

Claims 9-12 are patentable at least by reason of their dependency on claim 8.

Claim 13 has been amended to expressly recite, in method terminology, the same limitations discussed with respect to claim 1. Accordingly, claim 13 is patentable over the Kajiyama ‘441 patent for substantially the same reasons given with respect to claim 1.

Claims 14-19 are patentable at least by reason of their ultimate patentability on amended claim 13.

Claim 21 recites an engaging member that is separate from the lock member which, “**after** a time of operation of the pretensioner mechanism, is changed from a non-engageable state in which the engaging member cannot engage with the rotating member to an engageable state in which the engaging member does not engage with the rotating member to which rotational force in the take-up direction is applied **and engages with the rotating member to**

which rotational force in the pull-out direction is applied,...” By contrast, the lock member 38 of the Kajiyama ‘441 patent operates **immediately** upon the operation of the pretensioner 11, with **no delay** between the termination of the operation of the pretensioner and the application of a pull-out force to the lock wheel (see the paragraph bridging 6 and 7). The Examiner should note that claim 21 is directed toward the first embodiment of the invention illustrated in Figures 1-2, and that the recited lock member corresponds to lock plate 74 of lock member 72, and that the recited “engaging member that is separate from the lock member” corresponds to the lock pawl 78 best seen in Figure 2.

Claims 22-27 are patentable at least by reason of their ultimate dependency on amended claim 1.

Finally, new claim 28 is patentable for its recitation of

a rotating member **directly connected to a webbing spool** by which, due to being rotated in a take-up direction, a webbing is taken-up, and by which, due to the rotating member being rotated in a pull-out direction, the webbing is pulled-out;

a force limiter including a **single** torsion bar for maintaining a load which is applied from the webbing to the vehicle occupant at a constant level, and

an engaging member that is separate from the lock member which, due to operation of the pretensioner mechanism, is changed from a non-engageable state in which the engaging member cannot engage with the rotating member to an engageable state in which the engaging member can engage but does **not engage** with the rotating member **until** a rotational force in the take-up direction is applied to the rotating member **and the single torsion bar of the force limiter**, whereupon said engaging member **immediately engages with and impedes** the rotating member from rotating.

Support for this amendment is present in paragraph [0046] as follows:

[0046] On the other hand, after operation (after the conclusion of operation) of the pretensioner mechanism 34, pull-out load is applied to the webbing 20 from the vehicle occupant, **and, immediately after rotational force in the pull-out direction is applied to the spool 18, the torsion shaft 24 and the lock gear 26**, the other end of the guide plate 80 is rotated toward the lock gear 26 by the rotational force in the pull-out direction of the ratchet tooth 28 which the guide leg 84 of the guide plate 80 abuts first. **In this way,**

the other end of the lock pawl 78 is rotated toward the lock gear 26 by the guide leg 82 of the guide plate 80, **and meshes with the next ratchet tooth 28** in the take-up direction after that ratchet tooth 28. Therefore, rotation of the lock gear 26 in the pull-out direction is impeded, and pulling-out of the webbing 20 is impeded. (Emphasis added.)

The advantage of such an operation is set forth in paragraphs [0047] and [0048] as follows:

[0047] Further, after the rotation of the lock gear 26 in the pull-out direction is impeded by the lock pawl 78 and the pulling-out of the webbing 20 is impeded in this way, at the time when the torsional load applied to the torsion shaft 24 from the vehicle occupant via the webbing 20 and the spool 18 is greater than or equal to a predetermined load, the force limiter mechanism is operated. Namely, due to the torsion shaft 24 being torsionally deformed, the spool 18 is rotated in the pull-out direction **independently of the lock gear 26**. In this way, the webbing 20 is pulled-out, **and the load (energy) applied to the vehicle occupant from the webbing 20 is absorbed**.

[0048] Due to the above, as compared with a case in which the lock teeth 76 of the lock plate 74 are made to mesh with the ratchet teeth 28 of the lock gear 26 and pulling-out of the webbing 20 is impeded due to it being sensed that the pull-out acceleration of the webbing 20 has become greater than or equal to the predetermined acceleration after the pretensioner mechanism 34 operates, **the amount of the webbing 20 which is pulled-out can be reduced from after the operation of the pretensioner mechanism 34 until the operation of the force limiter mechanism**.

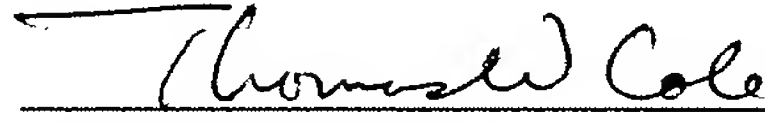
By contrast, the lock wheel 35 of the Kajiyama '441 patent is not "directly connected" to the spool 4, but instead is indirectly connected to the spool 4 via gears 33, 34 and 30, 31. Moreover, the force limiter of the Kajiyama '441 patent includes **two** torsion bars 32 and 7, and **not** the recited "**single** torsion bar for maintaining a load which is applied from the webbing to the vehicle occupant at a constant level,..." Finally, instead of the recited engaging member that can engage "but does **not engage** with the rotating member **until** a rotational force in the take-up direction is applied to the rotating member **and the single torsion bar of the force limiter**," the lock member 38 of the Kajiyama '441 patent operates **immediately** upon the operation of the pretensioner 11, with **no delay** between the termination of the operation of the pretensioner and

the application of a pull-out force to the lock wheel (see the paragraph bridging 6 and 7). For these three reasons, new claim 28 is clearly patentable over the Kajiyama '441 patent.

Now that all of the claims are believed to be patentable, the prompt issuance of a Notice of Allowance is hereby earnestly solicited.

Respectfully submitted,

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Attachments